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ABSTRACT

The "Leader Effectiveness Index (LEI) is a multirater instrument designed to assess the effectiveness of leadership performance of vocational educators. It consists of seven items. The first six items are statements of six broad tasks (or responsibilities) of a leader in vocational education: (1) inspires shared vision and establishes standards; (2) fosters unity, collaboration, and ownership and recognizes individual and team contributions; (3) exercises power effectively and empowers others to act; (4) exerts external influence to set the right context for the organization; (5) establishes an environment conducive to learning; and (6) satisfies the job-related needs of individuals in the organization. The seventh item rates the overall leadership performance of the person being rated. This manual is intended for use by persons who wish to learn more about the LEI. It contains the following sections: (1) the conceptualization that provides the rationale for the instrument; (2) an explanation of how the instrument is to be used; (3) a report of the instrument's development and psychometric characteristics; and (4) a description of the process used to establish an appropriate norm group. The manual also provides directions for preparing an effectiveness rating instrument, 51 references, the LEI, an example of an individualized report, and a table for converting LEI raw scores to normalized t-scores. (KC)

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NCRVE

National Center for Research in
Vocational Education

University of California, Berkeley

LEADER EFFECTIVENESS INDEX MANUAL

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LEADER EFFECTIVENESS INDEX MANUAL

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PREFACE

This Manual should be of particular interest to potential users of the *Leader Effectiveness Index* (*LEI*), as well as to those who study leadership and its measurement. The Manual contains (1) the conceptualization of leadership which provides a foundation for the *LEI*, (2) an explanation of how to use the instrument, (3) a description of the *LEI*'s development and psychometric characteristics, and (4) a report of the process used to create an appropriate norm group.

The *LEI* is a multirater instrument. It yields a single measure that reflects the effectiveness with which six tasks of leaders in vocational education are being performed. The six leadership tasks are to (1) inspire a shared vision and establish standards that help the organization achieve its next stage of development; (2) foster unity, collaboration, and ownership, and recognize individual and team contributions; (3) exercise power effectively and empower others to act; (4) exert influence outside of the organization in order to set the right context for the organization; (5) establish an environment conducive to learning; and (6) satisfy the job-related needs of members of the organization as individuals.

Individualized feedback to the person whose leadership performance is being rated (the ratee) shows the average rating assigned to the ratee by three to five of his or her subordinates and/or peers and a comparison of the average rating given the ratee with the average ratings given to a norm group of 551 vocational administrators and vocational teacher leaders.

EXECUTIVE SUMMARY

This Manual is intended for use by persons who wish to learn more about the *Leader Effectiveness Index* (*LEI*). It contains (1) the conceptualization which provides the rationale for the instrument, (2) an explanation of how the instrument is to be used, (3) a report of the instrument's development and psychometric characteristics, and (4) a description of the process used to establish an appropriate norm group.

In the conceptualization, the process of leadership is defined as "the use of noncoercive influence to direct and coordinate the attributes of the members of an organized group toward the accomplishment of group objectives" (Jago, 1982, p. 315). More specifically, this process is envisioned to achieve the following six broad tasks: (1) inspire a shared vision and establish standards that help the organization; (2) foster unity, collaboration, and ownership, and recognize individual and team contributions; (3) exercise power effectively and empower others to act; (4) exert influence outside of the organization in order to set the right context for the organization; (5) establish an environment conducive to learning; and (6) satisfy the job-related needs of members of the organization as individuals. Two studies are reported in the Manual which show that vocational teachers use the foregoing six broad tasks more than any others as criteria for evaluating the effectiveness of their administrator's performance as a leader.

The *LEI* provides a multi-observer assessment of the effectiveness of leadership performance in vocational education. The 1993 edition contains seven items. The first six items measure the extent to which each of the above six leadership tasks are being performed; the seventh item measures the overall effectiveness of the leader's performance. A 6-point response scale follows each of the seven items. The scale (scored 1-6) ranges from "Not Effective" to "Extremely Effective"; a response of "Not Applicable" is also permitted.

The test-retest correlation coefficient of the average rating of the six tasks, measured one week apart, is r=.94; the test-retest correlation coefficient of item 7 (overall assessment) is r=.95. Using the average ratings of three to five observers for each ratee, the internal consistency (Cronbach's alpha) of the first six items on the *LEI* is .92. The interrater reliability of the *LEI*, which measures the extent to which a group of three to five raters agree on their ratings of each ratee, is .86.

There are two common applications of the *LEI*. The first is a point-in-time assessment. The second is to measure change in leadership performance over time. A point-in-time assessment is the first step in leadership development. It sensitizes the ratee to the views of co-workers about her or his performance as a leader, and it provides the motivation for improving performance and/or builds self-confidence. As a part of a point-in-time assessment, the *LEI* can be used in conjunction with the *Leader Attributes Inventory* (*LAI*). After utilizing the *LEI* to ascertain the effectiveness, the ratee can use the *LAI* to assess the extent to which multiple observers believe she or he possesses each of the 37 leader attributes. These attributes are characteristics, knowledge, skills, and values which have been found to be highly related to performance as a leader in vocational education. Individualized feedback from the *LAI* will enable the ratee to identify the specific attributes that should be strengthened in order to improve leadership performance (Moss, Lambrecht, Finch, & Jensrud, in press).

Measuring change in leadership performance over time can be accomplished by administering the *LEI* twice—once as a pretest and again as a posttest (using the usual experimental design precautions). For example, the effectiveness of a leadership development program can be measured by having each program participant use the *LEI* to secure ratings about her- or himself from three to five observers. After the program has been completed, and sufficient time has elapsed for any behavioral change to become evident, the same three to five observers can rate a participant a second time.

For the purpose of establishing comparison (norm) groups for use with the *LEI*, vocational educators with three different roles were used to form three purposive samples: (1) chief vocational administrators (CVA), (2) vocational department heads (VDH), and (3) vocational teacher leaders (VTL). The samples were drawn from 12 states, each deemed to have a strong secondary or postsecondary vocational education system. *LEI* scores were collected from three to five subordinates and/or peers about *each* of 551 members of the three samples. The sample sizes were 220 CVAs, 168 VDHs, and 163 VTLs. Since no significant differences were found among the mean scores of the three samples, they were combined to form one norm group (n=551) entitled "Vocational Administrators and Vocational Teacher Leaders."

Finally, utilizing the data about the norm group, the Manual provides directions for preparing and an example of an individualized feedback report. The report shows

graphically the average rating assigned to the ratee by three to five of his or her subordinates and/or peers, and a comparison of the average rating given the ratee with the average ratings given to the norm group of "Vocational Administrators and Vocational Teacher Leaders."

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INTRODUCTION

The *Leader Effectiveness Index* (*LEI*) is a multirater instrument designed to assess the effectiveness of leadership performance of vocational educators. It consists of seven items. The first six items are statements of six broad tasks (or responsibilities) of a leader in vocational education. The seventh item asks, "Overall, how effective is the leadership performance of the person you are rating?" Each of the seven items is followed by a 6-point response scale. One possible response is a zero, "Not Applicable"; the other 6 points on the response scale range from "Not Effective" to "Extremely Effective." The average of the rating (1-6 points) on the first six items represents the perceived effectiveness of the leadership performance of the person being rated. Item 7 is included for research purposes (as in the validity study reported on p. 25). Appendix A contains a copy of the *LEI*.

The *LEI* is a companion instrument to the *Leader Attributes Inventory* (*LAI*) (Moss, Lambrecht, Finch, & Jensrud, in press). While the *LEI* measures the effectiveness of leader performance, the *LAI* provides a diagnostic assessment of the attributes that predispose desirable performance as a leader in vocational education.

Background

The *LEI* (as well as the *LAI*) has been developed over the past six years with funding from the National Center for Research in Vocational Education. NCRVE consists of seven institutions of higher education headed by the University of California at Berkeley. The other institutions are Teachers College at Columbia University, RAND Corporation, University of Illinois, University of Minnesota, University of Wisconsin, and Virginia Polytechnic Institute and State University. NCRVE is supported by a grant from the Office of Vocational and Adult Education, U.S. Department of Education, as authorized by the Carl D. Perkins Vocational Education Act. The grant is for conducting research, development, dissemination, and training that will improve the practice of vocational education in the United States.

The Center's Role in Leadership Development

NCRVE's interest in leadership and leadership development stems from three sources. First, the Perkins Act requires that NCRVE "provide leadership development

services to vocational educators." The language of the Perkins Act, however, gives no clues about the way in which the requirement is to be satisfied. Second, persons throughout the country who were consulted about NCRVE's overall program of work, as well as those who were interviewed specifically for the purpose of exploring strategies for leadership development, agreed unanimously that vocational education does not now have the number of effective leaders that are urgently needed. More importantly, they also agreed that a systematic effort to develop leaders was not being made. Third, leadership becomes especially critical to organizations in unstable situations—situations in which change in the environment makes familiar ways of conducting the affairs of the organization unsatisfactory or irrelevant. NCRVE's Board of Directors believes strongly that, as much as in any previous era, vocational education is in just such a situation now. The field is faced with a series of changes that are rapidly and significantly altering the educational and economic environment in which it exists—changes in the nature of work, changes in the ethnic/cultural composition of the student body, and increasing public demands upon the education system. Vocational education must begin its own transformation if it is to remain a viable form of education in the new environment. Leaders are needed who can point to new directions and who can influence others to believe and to follow.

The Status of Research About Leadership

A great deal of research about leadership has been conducted during the last four decades in a wide variety of disciplines and fields of practice: philosophy, anthropology, psychology, sociology, political science, social psychology, management, and the military have all contributed to the body of literature. Education is a latecomer to the study of leadership and almost no research has been done in vocational education. Despite this considerable attention, it seems fair to say that, as yet, there is no consensus on a specific definition of leadership, an explanatory model of leadership behaviors, or the most useful means for measuring the effectiveness of leaders. There is, however, substantial agreement that leadership is a viable construct and that it can be recognized in practice, that aspects of leadership behavior can be measured and shown to be related to effective performance, and that educational interventions can effect the behavior of leaders. Summing up the progress made in the study of leadership since World War II, Kenneth Clark (1988) puts it this way:

> We may not have given the world a comprehensive theory of leadership, complete with knowledge about how to increase the quality and number of

> leaders in future generations, but we have learned an enormous amount about the importance of certain qualities, about the effects of certain corporate or societal policies, and about ways in which persons with selected talents can be identified. (p. 1)

NCRVE's Program of Work

Given, on the one hand, NCRVE's compelling need to provide leadership development services for vocational educators, but faced, on the other hand, with the absence of an agreed-upon comprehensive theory of leadership, NCRVE's first task became the creation of its own conceptualization of leadership and leadership development. The requirements of the conceptualization were that it be consistent with the results of prior empirical research and that it serve as a foundation for designing leadership development services and evaluating their effectiveness.

The conceptualization that resulted from an extensive review of the literature, as well as interviews with leadership theorists and trainers, defines leadership and leadership development. It advances an explanation of the sources of leadership behavior, makes explicit the criteria for assessing leadership performance in vocational education, and hypothesizes a set of attributes—characteristics, knowledge, skills, and values possessed by individuals—which predispose desirable leader behaviors (Moss & Liang, 1990). Because the justification for the content and use of the *LEI*, as well as the *LAI*, resides in the conceptualization, its most relevant ideas are presented in the next part of this section. The research that has been conducted to support the development of the *LEI* is presented in the third and fourth sections of this Manual.

Concurrent with the creation of the *LEI* and the *LAI*, NCRVE has carried out a preliminary review of instructional materials used in leadership programs to identify those that are available, relevant, high quality, and low cost (Finch, Gregson, & Reneau, 1992). As a direct result of this review, NCRVE personnel created a series of case studies (Finch et al., 1992) and an administration simulation (Finch, 1992) that may be used in leadership programs to apply leader attributes in problem-solving and decision-making situations that are realistic to vocational educators.

NCRVE has also stimulated, facilitated, and then evaluated the conduct of 17 new leadership development programs in universities across the country. The participants of ten of the programs were graduate students majoring in vocational education (Moss, Jensrud,

& Johansen, 1992); the participants of seven programs were inservice vocational teachers and administrators (Leske, Berkas, & Jensrud, 1993). The *LAI* proved to be useful as one of the tools for assessing program effects. The results of the evaluations provided insights that have most recently been used by NCRVE personnel to create a new leader development program for underrepresented groups in vocational education (Moss, Schwartz, & Jensrud, in press).

Conceptualizing Leadership and Leadership Development

A Definition

From NCRVE's perspective, leadership may be thought of

> as both a process and a property. The *process* of leadership is the use of noncoercive influence to direct and coordinate the attributes of the members of an organized group toward the accomplishment of group objectives. As a *property*, leadership is a set of qualities or characteristics attributed to those who are perceived to successfully employ such characteristics. (Jago, 1982, p. 315)

Leadership, then, is the *process* of perceiving when change is needed and influencing the group by such noncoercive means as persuasion and example in its efforts toward goal setting and goal achievement.

The *property* of leadership is ascribed to an individual by members of a group when they perceive the individual (inferred from her or his behavior) to possess certain qualities or characteristics. Members of the group allow an individual to lead—to influence them—when the individual's behaviors match the group's ideas about what good leaders should be and do in that context. Since leadership as a property lies in the eye of the beholder, only those who are so perceived are leaders. The specific properties of leadership depend upon the qualitative nature of the behaviors accepted by a particular group as evidence of leadership. Given this concept, the perceptions of potential followers—subordinates or peers in formal organizations—are of primary importance when assessing the effectiveness of leadership.

Individuals who are seen as leaders enjoy the power of influence that is voluntarily conferred (Gardner, 1986b). By contrast, individuals appointed to supervisory positions within organizations—for example, as head or administrator—have the power of authority

as a result of holding their positions. However, although supervisors can be given subordinates, they cannot be given followers. They must earn followers by displaying the qualities their subordinates ascribe to leadership. Consequently, any individual in the vocational education community—teacher, counselor, and administrator—can demonstrate behaviors consistent with the properties of leadership and be considered a leader by the rest of the group. While administrative positions in organizations may offer more opportunities to demonstrate leadership than some other positions, the position itself does not automatically confer leadership upon the holder.

Vocational education institutions and agencies (and the vocational education enterprise as a whole) must have leaders at all levels and in all professional roles. Certainly it is critical for top-level administrators to be good leaders; in order for organizations to achieve peak efficiency, however, leaders are needed throughout the organization (and the profession) in positions that have no authority as well as those that do.

The Tasks

The process of leadership may be further elaborated and the concept of leadership better understood by describing the broad tasks that comprise the leader's expected role in organized groups.

The perspective taken by NCRVE is that the leader's aim should be to achieve maximum group productivity (Cleveland, 1985; Kanter, 1981) by bringing into focus the organization's vision, mission, and values; helping to adapt the organization to the environment; and securing the commitment of individuals in the organization and fostering their growth by tapping their intrinsic motivation. This conception of a leader's role is essentially one of facilitating the group process and empowering group members through the use of consultation, persuasion, and inspiration. As John Gardner (1986a) has so eloquently stated,

> Perhaps the most promising trend in our thinking about leadership is the growing conviction that the purposes of the group are best served when the leader helps followers to develop their own initiative, strengthens them in the use of their own judgment, [and] enables them to grow and to become better contributors. [The problems we face] simply cannot be dealt with unless there are highly motivated workers who are accustomed to taking responsibility.

> To the extent that leaders enable followers to develop their own initiative, they are creating something that can survive their own departure. (p. 23)

In order to translate NCRVE's perspective into more specific criteria that can be used to evaluate a leader's performance, four broad leadership tasks were first synthesized from several sources (Bass, 1981; Gardner, 1987; Posner & Kouzes, 1988; Yukl & Van Fleet, 1982). Two tasks philosophically consistent with the first four were added later as the result of a validation study conducted to determine the tasks that are actually used as criteria by vocational teachers when they evaluate the leadership performance of their administrators (Moss, Finch, & Johansen, 1991).[1] The six leader tasks that describe the envisioned role of leaders in vocational education and which serve as criteria for the measurement of leader performance are as follows:

1. Inspires a shared vision and establishes standards that help the organization achieve its next stage of development. For example, creates a sense of purpose, defines reality in the larger context, and instills shared values and benefits.

2. Fosters unity, collaboration, and ownership, and recognizes individual and team contributions. For example, creates a climate of community, builds morale, sets a positive tone, and resolves disagreements.

3. Exercises power effectively and empowers others to act. For example, facilitates change, shares authority, and nurtures the skills of group members.

4. Exerts influence outside of the organization in order to set the right context for the organization. For example, serves as a symbol for the group, secures resources, builds coalitions, and acts as an advocate.

5. Establishes an environment conducive to learning. For example, provides intellectual stimulation, creates a supportive climate for learners, and facilitates the professional development of staff.

6. Satisfies the job-related needs of members of the organization as individuals. For example, respects, trusts, and has confidence in members, adapts leadership style to the situation, and creates a satisfying work environment.

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[1] The study is more fully described in Section 3.

Leader Behaviors

As leaders attempt to achieve the six tasks of leadership, their specific behaviors within an organization are determined by their own attributes (which Jago calls qualities) interacting with their perception of (1) the group members' attributes (including the group's culture), (2) the particular task at hand, and (3) the general context in which the organization is operating. The behaviors that stem from this interaction are very situational; they change with the leader's perception of the prevailing context, the immediate task, and the relevant qualities of the group.

Group members filter the leader's behavior through their own perceptions of the context, the task at hand, and the leader's attributes, and then behave within the constraints of their own attributes. The meaning systems of the leader and the group must, therefore, correspond or the intent of the leader's behavior will be misunderstood.

This model is depicted in Figure 1-1. Two feedback loops are shown. First, the leader may adjust perceptions of her or his own attributes or the group's attributes or both, and may even make a mid-course change in behavior, as a result of group behavior. Second, members of the group may adjust their perceptions of the leader's or their own attributes or both, and may even adjust their behavior in mid-course, as a result of their assessment of the leader's behavior. One implication of the model is that the leader is influenced by the group, as well as vice versa, thereby making leadership behavior a possible dependent as well as an independent variable.

Several classification systems have been created for categorizing the behaviors of leaders. One system classifies behavior as either initiating structure (task-oriented behaviors) or initiating consideration (people-oriented behaviors). Research has shown that the most effective leaders exhibit behaviors in both categories, with the balance influenced by the nature of the group, the task, and the context. More recently, behaviors have been categorized as either transactional or transformational (Bass, 1985; Burns, 1978). Transactional leaders give something in exchange for what they want, they direct energy, tend to live within the organizational culture, and hold followers in a dependent position. By contrast, transformational leaders synergize the energy of followers, alter the culture, and put themselves and their followers in an interdependent relationship. Researchers agree that both transactional and transformational behaviors are needed to accomplish the broad tasks of leadership. It has been shown, however, that leaders who

exhibit greater amounts of transformational behaviors have a more positive impact on such criteria as team performance, subordinate's evaluation of effectiveness, satisfaction with leaders, and supervisor's ratings of leader performance (Avolio & Bass, 1988; Bass, 1987; Clover, 1988; Hater & Bass, 1987; Mueller, 1980; Yammarino & Bass, 1988)

FIGURE 1-1

Relationships Between the Leader's and the Group's Behaviors

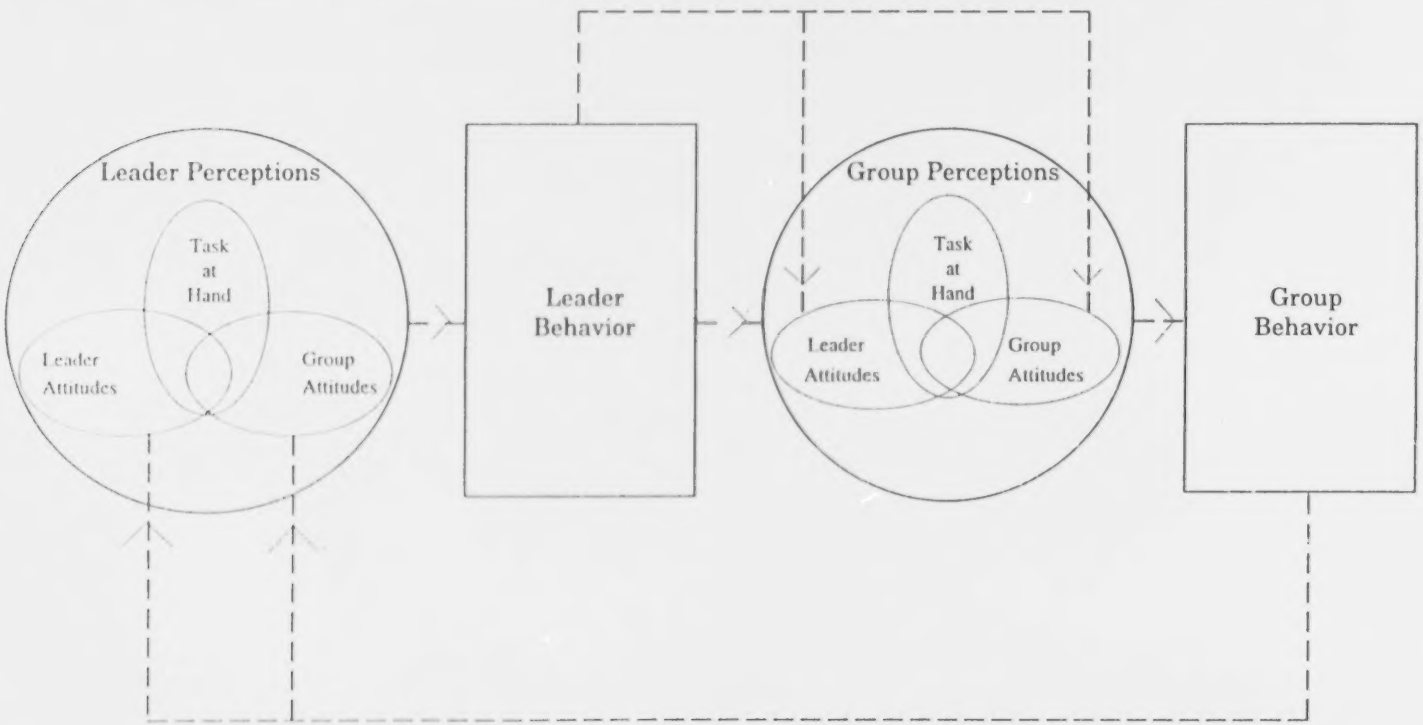

Figure 1-1

Leader Attributes

While it is a leader's behaviors that directly influence group performance, it is a leader's attributes—the characteristics, knowledge, skills, and values possessed by the leader—that shape those behaviors. Within the constraints of a given situation, attributes, acting as predispositions, disinhibitors, and abilities, predispose individuals to behave in consistent ways. Attributes remain constant across situations to influence behavior in a wide array of tasks, groups, and contexts (Lord, DeVader, & Alliger, 1986). For example, attributes determine the tendency of an individual to use transactional or transformational behaviors (Brown & Hosking, 1986; Kuhnert & Lewis, 1987). The greater the latitude provided by the situation, the more likely it is that attributes will shape and guide behavior. Bass (1981) sums up this way:

> Strong evidence has been found supporting the view that leadership is transferable from one situation to another. Although the nature of task demands may limit transferability, there is a tendency for the leader in one group to emerge in this capacity in other groups. (p. 596)

Many researchers have linked attributes directly to an array of leadership criteria in a wide variety of situations. For instance, the kind and the amount of certain attributes an individual possesses have been shown to be consistently and significantly related to such measures as rated managerial performance, advancement in business and education, and the emergence and succession rate of leaders (Arter, 1988; Behling & Champion, 1984; Hogan, Raskin & Fazzini, 1988; Hollander & Offermann, 1988; House, 1988; Sashkin & Burke, 1988; Yukl, 1981). Earlier reviews of the literature—for example, Stogdill (1948)—are often thought to have revealed that there are no relationships between intelligence, personality factors, and leadership. More recently, Lord et al. (1986) have used current meta-analysis methods to show that, to the contrary, the literature has shown that there are significant and consistent relationships between personality factors and intelligence and the emergence of leadership.

It can be presumed, then, that there are some attributes, which, if possessed in adequate amounts, will increase the likelihood that desirable leadership behaviors will occur in a wide variety of situations, particularly if those situations occur within a limited general context such as vocational education.

What are those specific attributes? Although research on leaders and leadership in vocational education is almost nonexistent, the literature of several other fields is filled with

nominations based upon theory, experience, and empirical research. In one publication alone, Bass (1981) reviewed 124 studies completed between 1904-1947 and 215 more between 1947-1970. Although no two studies were found to advance exactly the same set of attributes, there is a great deal of consistency among the kinds of attributes proposed. After reviewing a large number of available publications and interviewing several leadership theorists and trainers, a list of 37 attributes was compiled.[2] The list consists of the attributes that are hypothesized to predispose the behaviors that will achieve the six broad tasks of leaders in vocational education. They are shown in Table 1-1 and are assessed by the *Leader Attributes Inventory*.

It has been assumed that the amount of each attribute possessed by individuals is normally distributed in the population of vocational educators. While some of the 37 leader attributes may be quite resistant to improvement, prior research has demonstrated that some of the attributes common to successful leaders can be increased by a reasonable amount of planned educational experiences (Bass, 1981; Lester, 1981; Manz & Sims, 1986; Yammarino & Bass, 1988; Yukl, 1981). The objective of leadership development activities should, therefore, be to improve those leader attributes that prove to be susceptible to change by educational interventions. Those attributes that prove to be resistant to change could provide a basis for selecting high potential trainees.

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[2] Originally, the list consisted of 35 attributes. In the process of developing the *Leader Attributes Inventory* (*LAI*), one of the attributes was found to be best stated as two attributes, and one new attribute was added, bringing the total to 37.

Table 1-1

Attributes Assessed by the *Leader Attributes Inventory* (*LAI*)

Attribute	
1. Energetic with stamina	20. Ethical
2. Insightful	21. Communication (listening, oral, written)
3. Adaptable, open to change	
4. Visionary	22. Sensitivity, respect
5. Tolerant of ambiguity and complexity	23. Motivating others
6. Achievement-oriented	24. Networking
7. Accountable	25. Planning
8. Initiating	26. Delegating
9. Confident, accepting of self	27. Organizing
10. Willing to accept responsibility	28. Team building
11. Persistent	29. Coaching
12. Enthusiastic, optimistic	30. Conflict management
13. Tolerant of frustration	31. Time management
14. Dependable, reliable	32. Stress management
15. Courageous, risk-taker	33. Appropriate use of leadership styles
16. Even disposition	34. Ideological beliefs appropriate to the group
17. Committed to the common good	
18. Personal integrity	35. Decision-making
19. Intelligent with practical judgment	36. Problem-solving
	37. Information management

The Objectives of Leadership Development

The general purpose of leadership development in vocational education is, therefore, to increase the number and quality of leaders prepared to meet present and future challenges facing the field. More specifically, NCRVE seeks to accomplish that purpose by deliberately attempting to effect positive change in selected attributes (characteristics, knowledge, skills, and values possessed by individuals) to increase the likelihood that vocational educators will (1) perceive opportunities to behave as leaders, (2) grasp those opportunities, and (3) succeed in achieving the six tasks of leaders in a wide variety of situations and professional roles.

Leadership Development as a Part of Professional Development

Leadership development attempts to cultivate selected attributes to enhance the probability of successful performance as a leader in a wide variety of situations. These attributes are *common* to leadership behavior in all professional roles in vocational education; administrators should have them, teachers should have them, and counselors should have them. But in order to perform successfully as administrators or teachers, individuals need more than the common leadership attributes. They also need the knowledge and skill attributes that are unique to their given roles. These are the attributes that distinguish administrators from teachers, teachers from counselors, and counselors from administrators, and that determine whether individuals can perform the specific occupational or technical tasks of their professional roles. Leadership development is, thus, only one part of professional development. Professional development consists of cultivating both the leadership attributes *and* the attributes that facilitate successful performance in a particular professional role.

USING THE *LEADER EFFECTIVENESS INDEX*

Description

The *Leader Effectiveness Index* (*LEI*) provides a multi-observer assessment of the effectiveness of leadership performance in vocational education. The 1993 edition contains seven items. The first six items measure the extent to which each of six leadership tasks (responsibilities) are being performed; the seventh item measures the overall effectiveness of the leader's performance. A 6-point response scale follows each of the seven items. The scale (scored 1-6) ranges from "Not Effective" to "Extremely Effective"; a response of "Not Applicable" is also permitted. (See Appendix A.)

The version of the *LEI* contained in Appendix A does not ask for any information about the observer-raters. Questions appropriate to each situation such as gender, ethnic group membership, position, how well the ratee is known, and so on, can be collected separately, or added to the instrument itself, by the person managing the data collection process. Provision is made on the *LEI*, however, for entering an identification number for each rater. This eliminates the need to obtain the name of the observer-rater, thereby helping to preserve confidentiality while permitting the rating to be identified with a particular ratee.

The instrument can be completed in less than five minutes. In order to balance the demands of efficiency and interrater reliability, and to acquire valid ratings, three to five subordinates (or peers if there are not enough subordinates) who know the ratee well at work should be used as observer-raters for each ratee. To maintain the confidentiality of ratings (and therefore their candor), all of the completed forms should be returned directly to the *LEI* vendor for scoring and completion of feedback reports.

The *LEI* produces a single score for each ratee. It is the average rating on items 1-6, itself averaged over the number of observer-raters used for each ratee.

Individualized feedback reports to the individuals being rated contain two charts which present the ratee's average observer-rating and compare the ratee's average observer-rating with the average observer-ratings of a norm group of vocational administrators and vocational teacher leaders. Appendix B presents a sample of a feedback report that contains the two charts and an explanation of how the feedback is to be interpreted. The section

entitled, "Establishing Norms and Standards for the *LEI*," provides a description of the vocational norm group presently available for comparison and how it was created.

Applications

There are two common applications of the *LEI*. The first is a point-in-time assessment. The second is to measure change in leadership performance over time.

A point-in-time assessment is the first step in leadership development. It sensitizes the ratee to the views of co-workers about her or his performance as a leader, and it provides the motivation for improving performance and/or builds self-confidence and "psychological capital" (probably with attendant improved performance). As a part of a point-in-time assessment, the *LEI* can be used in conjunction with the *Leader Attributes Inventory* (*LAI*). After utilizing the *LEI* to ascertain the perceptions of co-workers about his or her leadership effectiveness, the ratee can use the *LAI* to assess the extent to which multiple observers believe she or he possesses each of the 37 leader attributes. These attributes are characteristics, knowledge, skills, and values which have been found to be highly related to performance as a leader in vocational education. Individualized feedback from the *LAI* will enable the ratee to identify the specific attributes that should be strengthened in order to improve leadership performance (Moss, Lambrecht, Finch, & Jensrud, in press).

Measuring change in leadership performance over time can be accomplished by administering the *LEI* twice—once as a pretest and again as a posttest (using the usual experimental design precautions). For example, the effectiveness of a leadership development program can be measured by having each program participant use the *LEI* to secure ratings about her- or himself from three to five observer-raters. After the program has been completed, and after sufficient time has elapsed for any behavioral changes to become evident, the same three to five observer-raters can rate the participant a second time.

Supporting Materials

In January 1994 a team of developers supported by the National Center for Research in Vocational Education completed a leadership program entitled *Preparing Leaders for the Future: A Developmental Program for Underrepresented Groups in Vocational Education* (Moss, Schwartz, & Jensrud, in press). The program consists of 32 learning experiences (lessons) requiring approximately 90 clock hours of in-class instruction plus out-of-class assignments. The program may be adapted to various lengths and to suit the developmental needs of specific groups and individuals.

One section of the program is designed to assist participants in planning for their leadership development. Included in that section are two learning experiences which (1) introduce the conceptualization of leader attributes and (2) use the *LAI* self-rating and rating-by-observer forms to produce an assessment of each participant's leader attributes. A third learning experience in the same section uses the results of the attribute assessment, together with the results of other instruments, to help each participant formulate a leadership development plan.

Another section of the program is designed to develop participants' leader attributes. Twenty-four learning experiences are provided to improve participants' performance on 23 of the 37 attributes assessed by the *LAI*. Each learning experience is focused on an attribute that is presumed to be "improvable" through a planned learning experience. The final learning experience requires the application of all the attributes through a simulation exercise in which program participants administer a large postsecondary institution (Finch, 1992).

Each learning experience in the program contains the following: (1) a statement of a performance objective, (2) a description of the steps in the process and the knowledge base required to perform the desired behavior(s), (3) a plan for delivering the learning experience, (4) an outline of the content to be covered by the learning experience, (5) out-of-class assignments, and (6) master copies of the handouts and transparencies to be used in the delivery of the learning experience.

DEVELOPING THE *LEADER EFFECTIVENESS INDEX*

Introduction

As conceived by NCRVE, the purpose of leadership development is to effect positive change in selected attributes (characteristics, knowledge, skills, and values possessed by an individual) to increase the likelihood that vocational educators will (1) perceive opportunities to behave as leaders, (2) grasp those opportunities, and (3) succeed in achieving the tasks of leaders in a wide variety of situations and professional roles. The role of leaders in vocational education is perceived primarily as facilitating the group process and empowering group members. Leaders carry out this role by performing the following six broad tasks: (1) inspire a shared vision and establish standards that help the organization achieve its next stage of development; (2) foster unity, collaboration, and ownership, and recognize individual and team contributions; (3) exercise power effectively and empower others to act; (4) exert influence outside of the organization in order to set the right context for the organization; (5) establish an environment conducive to learning; and (6) satisfy the job-related needs of members of the organization as individuals. *The Leader Effectiveness Index* (*LEI*) has been developed to measure the extent to which vocational education professionals are achieving these six tasks. This section describes the steps in the development of the *LEI*.

Developmental Process

Initially, the *LEI* contained only the first four of the six broad tasks listed above (Liang, 1990; Moss & Liang, 1990). The four tasks, as four items with a 5-point response scale ranging from "Extremely effective" to "Not effective," were appended as a separate section of the *Leader Attributes Inventory* (*LAI*). As a part of the Liang study, a subsample of 36 postsecondary vocational teachers were asked to rate two times, with an interval of two weeks between ratings, the vocational administrator whom each knew best. The test-retest reliability coefficient of the total score of the four items was .92.

In 1990, a class of 38 master's- and baccalaureate-level students majoring in management completed the next version of the *LEI*. This version continued to include the same four tasks used in the Liang study, but added a fifth task, "plays the political role." The same 5-point response scale was utilized. Since all of the students were employed in

business and industry, they were asked to rate their present supervisors on the five items and on the *LAI*. The *LEI* was administered twice three weeks apart. The test-retest correlation of the total *LEI* score was .90. The total score of the five *LEI* items and the total score of the first four items (excluding "plays the political role") were then correlated with each of the 37 attributes on the *LAI*. The resulting coefficients were identical. It was concluded that the fifth task-item, "plays the political role," did not contribute any dimensions to the leadership role that were not already being assessed by the first four *LEI* task-items.

It was also recognized in 1990 that the type of outcomes or criteria that group members might utilize when they judge leader effectiveness can differ widely, and that it was critical to determine whether the criteria actually used by vocational educators were those reflected in the four broad tasks being used by NCRVE. In other words, was NCRVE's view about the facilitating and empowering role of effective leaders the view used by vocational educators as they judged their leaders?

Three types of criteria for judging the effectiveness of leaders are found in the literature (Yukl, 1989). The most common type is the extent to which the leader's group or organization performs its tasks successfully or reaches its goals (organizational outcomes). A specific example of this type, assessed subjectively, might be the degree to which members of an organization ascribe its success to the efforts of the leader. Another common outcome is the personal impact of leaders on followers (impact on instructors). A subjective measure of this type might be the expressed strength of the followers' commitment to carry out the leader's requests. A third type of outcome is the leader's contribution to the quality of the group process (group process). For example, to what degree is the leader perceived to enhance group cohesiveness and member motivation (the facilitative, empowering role)?

A system for classifying leadership effectiveness criteria was created by Moss, Finch, and Johansen (1991) to reflect the three types of outcomes proposed by Yukl (1989). For each of the three types of outcomes, categories of criteria were created. Examples of specific criteria were then specified to illustrate the types of outcomes that might be included as a part of each category. Table 3-1 shows the three types of outcomes and the categories of criteria that were used for each type. Note that the five categories of criteria used with the type of outcome "Group Process," that is, facilitating the group

process and empowering group members, included the first four tasks that had previously been used as criteria on the *LEI*. A fifth category (or task), "establish a learning environment," was added to reflect a specialized category of outcomes appropriate to the educational context in which leaders in vocational education perform.

In order to validate these leader effectiveness criteria, vocational instructors were asked to identify events describing the behavior of successful vocational administrators. Data was collected from a purposive sample drawn from seven states, each with a well-developed system of secondary or postsecondary vocational education (Finch, Gregson, & Faulkner, 1991). In each state, the chief state administrative officer for vocational education and his or her immediate subordinates were interviewed to identify the most successful administrators of specialized vocational institutions—area vocational schools, vocational centers, and technical colleges. The two to seven local administrators nominated most frequently by the state staff were then contacted and asked to take part in the study. A total of 39 chief administrators of specialized vocational institutions (all of those invited) agreed to participate. Twenty participants administered secondary schools and 19 administered postsecondary schools; only three were females.

Table 3-1

Frequency of Use by Category of Criteria and Gender

Category	Female		Male		Total	
	n	%	n	%	n	%
Group Process						
1. Inspire a shared vision	1	0	3	1	4	2
2. Achieve unity and motivate	15	6	13	6	28	12
3. Implement change and power	21	9	19	8	40	17
4. Exert external influence	18	8	15	6	33	14
5. Establish learning environment	15	6	9	4	24	10
Impact on Instructors						
1. Satisfy job-related needs	20	8	27	11	47	20
2. Increase engagement with work	4	2	4	2	8	3
Organizational Outcomes						
1. Improve instruction	9	4	13	6	22	9
2. Provide equity and access	6	3	2	1	8	3
3. Increase labor market responsiveness	14	6	5	2	19	8
4. Satisfy student development	3	1	1	0	4	2
Totals	126	53	111	47	237	100

Each of the 39 administrators was asked to provide the names of six instructors in his or her school. Two of the six instructors were then randomly selected by the investigators so as to balance gender and occupational field. The 78 instructors chosen (39 administrators chose 2 instructors each) represented all of the vocational service areas as well as the related academic subjects.

The instructors were sent a letter requesting their cooperation in the study and telling them the kinds of questions they would be asked. Semi-structured telephone interviews were then conducted with all 78 instructors. As a part of the interview, each instructor was asked to recall two incidents or events in which her or his administrator was particularly effective as a *leader* and to provide a very detailed description of each event.

Each interview was recorded and transcribed and then the interviewer completed a write-up of each event. The purpose of the interview write-up was to organize and present the interview transcript and note-taking information in a more easily understandable format. Information contained in the write-up was organized into sections on "situation," "who was involved," "behavior," "thoughts/feelings," "outcome," and "writer comments" (Mentkowski, O'Brien, McEachern, & Fowler, 1982). All the transcripts and write-ups were reviewed by a second person to assure their accuracy and completeness. The write-ups of 154 events (two instructors provided descriptions of only one event each) comprised the database.

Each write-up was analyzed to determine the category or categories of criteria that the instructor was implicitly using when he or she identified the event as a particularly effective leadership behavior (Moss, Finch & Johansen, 1991). Two of the investigators read all of the write-ups in groups of ten. No difficulties were encountered in "fitting" the events into the classification system. After they had read and classified each write-up in a group as representing one or more of the categories of criteria, the investigators met to compare results. When they found a difference in the classification(s) of a write-up, they discussed their reasons and reached accord. For the first 80 write-ups the average agreement of the investigators before discussion was 70%. For the last 74 write-ups, the agreement before discussion reached an average of 91%.

As the investigators classified the write-ups, it immediately became evident that for many of the events there was a primary criterion being used as well as one or two additional (secondary) criteria. Instructors were often employing multiple categories of criteria to judge an event as evidencing particularly effective leadership. In some cases, the multiple categories of criteria were a part of the same type of outcome (division of the classification system)—for example, quality of the group process—but in 56 events the multiple categories of criteria were drawn from different types of outcomes, for example, quality of the group process and personal impact on followers.

Since the interpretation of events revealed that many reflected the use of one or two secondary criteria as well as primary criterion, data analyses were conducted using two sets of data: (1) the primary criteria only and (2) combining all of the criteria and giving equal weight to primary and secondary criteria. There are theoretical advantages and

disadvantages to using each data set, but as the two analyses yielded identical results, only the analysis using the combined criteria is presented here.

Table 3-1 presents the frequencies and percentages with which instructors used the criteria to determine which behaviors represent effective leadership by administrators in vocational education. A number of chi-square analyses were conducted and, based on these tests, several conclusions were reached. First, in a hypothetical population like the sample in this study, vocational instructors use the type of outcome, "Extent to which the leader's behavior is perceived to improve the quality of the group process" more than either of the other two types of outcomes (X^2=47.50; df=2; $X^2_{.01}$=9.21). Second, it was concluded that the gender of the vocational instructor was *not* related to the category of outcomes used (X^2=10.98; df=10; $X^2_{.01}$=23.21). Finally, it was concluded that there are significant differences among the frequencies with which vocational instructors used the categories of outcomes to assess effective leader performance (X^2=100.0; df=10; $X^2_{.01}$=23.21). Although "satisfy followers' (instructors') job-related needs and expectations" was the single most utilized category of criteria, four of the five categories in the "group process" type of outcome were ranked second to fifth in terms of their use. On the other hand, "inspire a shared vision" was tied for being used least frequently. Data from the study provides no explanation for this unexpected finding.

Based on the results of this study, it was decided to utilize six criteria (tasks) in the *Leader Effectiveness Index* (*LEI*): (1) inspire a shared vision and establish standards that help the organization achieve its next stage of development; (2) foster unity, collaboration, and ownership, and recognize individual and team contributions; (3) exercise power effectively and empower others to act; (4) exert influence outside of the organization in order to set the right context for the organization; (5) establish an environment conducive to learning; and (6) satisfy the job-related needs of members of the organization as individuals. The "visioning" task was included despite its low frequency of use as a criterion by vocational educators because it is consistent with the philosophic position of the NCRVE and because it is almost unanimously perceived by scholars as critical to what leaders *should* be accomplishing. The other five tasks were used most by instructors in the study; four of the five reflect improving the quality of the group process, which is consistent with the NCRVE's facilitative, empowering perspective of the leader's role. It is apparent that the vocational educators used in the sample also see the role of effective administrator-leaders as "empowerers" rather than as "controllers."

1993 Form

The 1993 form of the *LEI* contains the six items/tasks listed above, plus a seventh item designed to measure the respondent's overall assessment of a leader's performance: "Overall, how effective is the leadership performance of the person you are rating?" A 6-point response scale is provided for the seven items, ranging from "Not Effective" to "Extremely Effective." A response of "Not Applicable" is permitted. A copy of the *LEI* is contained in Appendix A.

Face Validity

In every version of the *LEI*, with all of the groups in which they have been used, no respondents have reported that any of the tasks were irrelevant to their conception of leadership. This acceptability is considered evidence of the instrument's face validity.

Construct Validity

Two studies have been conducted to assess the instrument's construct validity. The first, reported fully in Moss, Finch, and Johansen (1991), has already been described earlier in this section. That study determined the criteria actually used by vocational teachers to assess the effectiveness of their administrator's performance as a leader. The results indicated that the vocational teachers in the sample endorsed NCRVE's conceptualization of the leader's role as primarily a facilitator of the group process and an empowerer of group members. In other words, the *LEI* permits its intended users to express their own beliefs (as well as NCRVE's beliefs) about the leaders in vocational education.

In the second study, the 1993 edition of the *LEI* was administered to two groups of graduate students majoring in vocational education (n=37, n=38). The correlation coefficients between the average score of the first six items (the six broad tasks of leaders) and item 7 (overall assessment) of the two samples were r=.91 and .92. The average difference between the mean score of items 1-6 and item 7 was only .054 ($\overline{X}_{1\text{-}6}$=3.027; $\overline{X}_{7}$=2.973). Thus, with the average score of the six tasks practically the same as the score on item 7, and the correlation coefficient between them so high, the six tasks measured by the *LEI* appear to be assessing the complete set of criteria respondents used to judge leader effectiveness. This is a confirmation of the results of the study that showed the six tasks

measured by the *LEI* represent the criteria used by vocational educators when they judge the effectiveness of a leader's performance.

Test-Retest Reliability

In the second study noted above, the *LEI* was administered one week apart to each of the two groups of graduate students (n=37, n=38). The test-retest correlation coefficients of the average rating on the six tasks were r=.94 and .93. The test-retest correlation coefficients of item 7 (overall assessment) were r=.95 and .92. These coefficients demonstrate the satisfactory short-term stability of the *LEI* scores.

Internal Consistency

Internal consistency indicates the extent to which the items comprising the instrument are measuring the same concept. Cronbach's alpha is the statistic most widely used to assess internal consistency.

The data from the study that was used to establish one or more norm groups for the *LEI* was also used to compute internal consistency (see the next section for a description of the samples and the norming process). Using the average of three to five ratings-by-observers over the first six *LEI* items for each ratee and a sample of 551 ratees, the alpha of the current version of the *LEI* was .92.

Interrater Reliability

Agreement within groups of raters is called interrater reliability. In this case, it measures the extent to which a group of three to five raters, each using his or her perception of the ratee and the first six *LEI* items, agree on their ratings of the ratee. The data from three to five raters about each of 551 ratees were collected as a part of the study designed to establish norms for the current *LEI*. (See the next section for a description of the norming study.) The raters were either subordinates or peers of the ratees (peers were used when the ratee did not have five subordinates). The interrater reliability of the average rating of the first six *LEI* items/tasks is .86.

ESTABLISHING NORMS FOR THE *LEI*

Establishing norms enhances the meaningful interpretation of *LEI* scores. Certainly, learning how co-workers feel about the ratee's leadership performance provides very useful information, but persons being rated also want to know, "How are my ratings relative to the ratings of others in my group (or the group to which I aspire)?" Research by Moss, Jensrud, and Johansen (1992) has demonstrated that knowledge about the strength of one's attributes, relative to an appropriate comparison group, motivates participants of leadership development programs to set meaningful personal improvement goals and to strive to attain them. Consequently, a study was conducted during 1993 to establish norms for the *LEI*.

Identifying the Samples

Vocational educators with three different roles (each with an expectation that effective leadership should be provided) were used to form three purposive samples:

1. *Chief Vocational Administrators (CVA).* These were the chief line administrators in (1) specialized public secondary vocational institutions, for example, principals and directors; and (2) both specialized and comprehensive public postsecondary institutions, for example, presidents, directors, and deans.

2. *Vocational Department Heads (VDH).* These were administrators/managers of clusters of vocational programs, for example, department heads and coordinators in specialized public secondary vocational institutions, and both specialized and comprehensive public postsecondary institutions.

3. *Vocational Teacher Leaders (VTL).* These were professionals in non-administrative/management positions, for example, teachers and counselors, who were viewed by their chief administrator and/or department head as particularly influential among their peers. Examples are teachers who held elective positions in faculty associations, professional organizations, or unions.

With the advice of consultants, a group of twelve states was selected from which the three samples were drawn. These states were deemed to have well-developed

secondary or postsecondary vocational systems with relatively high proportions of minority teachers and administrators. Table 4-1 presents the total population of chief vocational administrators in each of the twelve states by type of institution. It is from this population that the sample of chief vocational administrators was selected.

All of the 329 chief vocational administrators (CVA) in the twelve states were contacted by letter and then by telephone. The study and their role in it was explained, and their agreement to participate was solicited. Three hundred eleven CVAs agreed to take part. Whether or not the CVAs agreed to participate, they were also asked to nominate (1) three vocational department heads (VDH) including (where possible) at least one member of a minority group and one female; and (2) up to three vocational teacher leaders, giving consideration to minorities and females whenever possible.

Table 4-1
Population of Chief Vocational Administrators
(n=329)

State	Technical College Administrators	Community College Administrators	Secondary Administrators
Arkansas	24		
Colorado		12	
Florida		27	
Georgia	32		
Illinois		38	
Iowa		18	
Maryland			33
Ohio			60
Oklahoma			30
Oregon		13	
Tennessee	26		
Wisconsin	16		
Totals	98	108	123

Vocational department heads (VDH) were then called and their participation in the study solicited. Minority VDHs were contacted whenever they had been nominated by CVAs. When no minority member had been nominated, or if the nominee declined to take part in the study, an attempt was made to randomly select an equal number of men and women to contact for the VDH sample. Two hundred eighty-nine vocational department heads consented to take part in the study. During the interviews, VDHs were asked to provide the names of up to three vocational teacher leaders, giving consideration to including minorities and females whenever possible.

Finally, vocational teacher leaders (VTL) were called and invited to be a part of the study. Minority members who had been nominated by either the CVA or VDH at a given institution were called first. If no minority member had been nominated, or if she or he refused to participate, individuals who had been named by both the CVA and the VDH were called. In lieu of joint nominees, an attempt was then made to randomly telephone an equal number of men and women. A total of 305 vocational teacher leaders agreed to participate in the study.

Collecting the Data

Each of the 905 persons who consented to take part in the norming study was sent a packet of materials containing the following pieces: (1) a cover letter explaining what they as ratees were being asked to do; (2) a form to collect demographic information about the ratee (participant); (3) a form for the ratee to name the five persons who were to complete both the *LAI* and the *LEI* as observer-raters; (4) five copies of the *LAI* rating-by-observer forms; (5) five copies of the *LEI*; (6) five copies of a cover letter; and (7) five envelopes (return addressed and postage paid) for completed forms to be sent back directly to the researchers.

Directions to the ratees (the 905 persons who agreed to participate in the study) stipulated that the *LAI* and *LEI* were to be given to five persons who "(a) Report to you either directly or indirectly (or in the event that you do not have five subordinates, they may be peers); (b) know you well at work; and (c) who, as far as possible, include females and persons from minority groups."

These directions call for raters to be persons who know the ratee well at work so that both the validity and reliability of ratings would be maximized. Edwards and Sproule (1985), for example, found that maximum interrater agreement among raters occurs as their knowledge about the ratee increases.

For several reasons, the directions allowed ratees to select their own raters. First, in contrast to a random selection of raters, it helped assure that the raters were persons who knew the ratee fairly well. Second, it guaranteed the credibility of the raters and, therefore, the acceptability of their ratings by the ratee and the utility of the results for professional development purposes. Third, empirical research (Wherry & Fryer, 1949; Hollander, 1956; Waters & Waters, 1970; Edwards, 1990) has shown that friendship does *not* bias evaluations.

The directions also call for five raters who are subordinates or, where necessary, peers. David Campbell (January 7, 1993), a leadership expert, reported that after "four plus" raters, the average and the standard deviation of raters' scores hardly change. The use of subordinates as raters whenever possible is consistent with NCRVE's conceptualization of leaders as individuals who, through such noncoercive means as persuasion and example, influence the behavior of group members. That is, leaders are individuals who have earned followers. Who knows more about an individual's leadership behavior and influence than those subordinates who are most impacted? A study by Edwards (1992) compared the ratings of subordinates with those of peers on 35 kinds of leadership behavior of over 5,000 managers. He found that subordinates' ratings were more consistent than those of peers and somewhat more rigorous than peers on many of the leadership behaviors. However, subordinates and peers agreed far more than they disagreed about the strongest and weakest leadership behaviors of the managers.

One follow-up was conducted with individuals who had agreed over the telephone to participate in the study, but who either had not returned completed forms containing demographic information or who had fewer than three observer-raters return completed *LAI* and *LEI* instruments. (A minimum of three raters was considered essential for reliable ratings.) Most of the follow-ups were conducted by telephone; the remainder were sent letter reminders.

All of the completed instruments were electronically screened for eligibility and then scored. To be eligible, the respondent had to report that she or he knew the participant/ratee "very well" or "fairly well" (not "casually" or "not at all") and was a subordinate or peer (not a superior) of the ratee. The responses of ineligible raters were eliminated, and if this reduced the number of eligible raters below three, the ratee was dropped from the sample.

Table 4-2 summarizes the numbers of participants by each of the three samples at key stages of the data collection process. The required number of completed *LEI* and *LAI* forms (at least three) was received from 77% of the individuals who had agreed over the telephone to participate in the study (the ratees). After screening the completed *LAI* forms for eligibility, 61% of those who had agreed to participate remained in the three samples.

Table 4-2
Numbers of Participants by Sample Groups at Key Stages of the Data Collection Process

Data Collection Stage	Chief Vocational Administrators	Vocational Department Heads	Vocational Teacher Leaders	Total
1. Agreed To Participate in the Study	311	289	305	905
2. Returned a Sufficient Number of Responses	260	221	212	693
3. Returned a Sufficient Number of Eligible Responses	220	168	163	551
4. Eligible Responses as a Percent of those Agreeing To Participate	71	58	53	61

Establishing Norm Groups

Combining Samples

With ratings on the *LEI* collected from three to five eligible observers for each of 551 ratees in the three sample groups, the first stage of the data analysis was to determine

whether two or more of the three groups could be combined to form norm groups. More precisely, were the observer-ratings for the three samples sufficiently different to warrant establishing three separate norm groups?

Ratings on the first six items of the *LEI* were averaged for each rater, and then that mean rating was averaged across the three to five raters for each ratee. The resulting mean rating was considered to be the best estimate available of the ratee's leadership performance and was used in subsequent steps of the analysis. Table 4-3 presents the means and standard deviations of *LEI* ratings (1-6) on the three sample groups.

Table 4-3
Means and Standard Deviations of *LEI* Ratings on the Three Sample Groups

Statistic	Chief Vocational Administrators (n=220)	Vocational Department Heads (n=168)	Vocational Teacher Leaders (n=163)
Mean Rating	4.71	4.76	4.80
Standard Deviation	.56	.59	.55

A one-way ANOVA was conducted to test for differences among the three group means. No significant differences were found at the .05 level. (The probability level of finding a difference this great was p=.255.) Given the results of the ANOVA, it was decided to combine the three sample groups into one norm group of "Vocational Administrators and Vocational Teacher Leaders" (n=551). Table 4-4 summarizes the characteristics of this norm group.

It should be noted that when the data from the *LAI* was analyzed, the order of the sample group means was the same as reported in Table 4-3 for the *LEI*—the vocational teacher leaders were rated highest and the chief vocational administrators lowest. The average rating of the 37 *LAI* attributes was also not significantly different among the three groups. However, in the case of the *LAI*, the ratings on the 37 individual attributes were quite consistently higher for the vocational teacher leader group. Consequently, for the *LAI*, two norm groups were established consisting of (1) vocational administrators

(combining chief vocational administrators and vocational department heads) and (2) vocational teacher leaders.

Gender Differences

Data from the norm group of vocational administrators and vocational teacher leaders were examined for gender differences by applying a "t"-test to the mean ratings of females (n=248) and males (n=303). A significant difference was found at the .05 level with the female mean rating ($\overline{X}$=4.82, SD=.57) higher than the male mean rating ($\overline{X}$=4.69, SD=.57). The actual probability of finding a difference this great by chance was .01.

Table 4-4
Vocational Administrator and Vocational Teacher Leader Norm Group

State (Institution Type)	Caucasian		Other		Total
	Female	Male	Female	Male	
Arkansas (Technical Colleges)	8	20	2	1	31
Colorado (Community Colleges)	7	7	1	-	15
Florida (Community Colleges)	38	38	5	6	87
Georgia (Technical Colleges)	21	17	-	1	39
Iowa (Community Colleges)	9	18	-	1	28
Illinois (Community Colleges)	30	60	2	1	93
Maryland (Secondary Centers)	15	22	4	2	43
Ohio (Secondary Centers)	45	35	-	1	81
Oklahoma (Secondary Centers)	15	23	2	2	42
Oregon (Community Colleges)	9	13	1	1	24
Tennessee (Technical Colleges)	15	16	1	2	34
Wisconsin (Technical Colleges)	16	14	2	2	34
Totals	228	283	20	20	551

The fact that females are rated higher than males on the *LEI* is consistent with the data from the *LAI*. While no significant difference was found between genders in the vocational teacher leader group with the *LAI*, women administrators were found to have been rated higher than men administrators. Two possible explanations were advanced for

this result that might also apply to the *LEI* finding. First, since it is typically more difficult for women than men to attain administrative positions, those who do are likely to be a more select group. Second, the attributes (qualities) of individuals consistent with the desired facilitating, empowering role of leaders in vocational education are often thought to be among the strengths our culture develops in females.

Although it is recognized that gender differences do exist, it is not very useful to create separate male and female norms. There is little to be gained by women comparing themselves with other women (or men with other men). It is more realistic and useful for all individuals to compare themselves with a group of practicing vocational administrators and teacher leaders. Idealistically, of course, all leaders, regardless of gender, should aspire to be as high as possible on all attributes.

Ethnic Group Differences

Although attempts were made to include every available minority group member in the chief vocational administrator, vocational department head, and vocational teacher leader samples, a total of only forty minority persons became a part of the norm group. Given this small number, and the fact that there were several ethnic groups included among the forty persons, no attempt was made to test for norm group differences based upon ethnic group membership.

Feedback Calculations

One part of the individualized *LEI* feedback report (see Appendix B) compares the ratee's average observer-ratings with the ratings of the norm group in terms of normalized T-scores and percentiles. Appendix C contains a table which provides normalized T-score equivalents to *LEI* average-observer ratings (as raw scores).

The table in Appendix C also shows the standard error of measurement of the ratee's average observer-rating. The standard error is a measure of uncertainty of the precision of the mean rating of the three to five observers actually used. More precisely, if a large number of sets of three to five observers were used to rate the same person (whom they knew well at work), in 68% of the cases their average rating would fall between plus and minus one standard error. As the table in Appendix C shows, the standard error of the average observer-ratings is .4 points.

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Appendix A

Leader Effectiveness Index

LEADER EFFECTIVENESS INDEX

Jerome Moss, Jr.

ID NUMBER

0	0	0	0	0	0	0
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

Marking Directions

- Use pencil or black or blue pen.
- Darken the circle completely.
- Erase cleanly any marks you wish to change or X out mark if in pen.
- Do not make any stray marks on this form.

Correct Marks

○ ● ○ ○

Incorrect Marks

✓ ⊗ ◐ ◔

SECTION A

We are seeking your opinion about how effectively an individual is performing as a leader. You will return this form directly to the National Center for Research in Vocational Education so the person you are rating will not be able to identify your responses. Therefore, we urge you to reflect carefully about each statement and select the rating that best describes the person.

For each of the statements which follow, fill in the circle that best describes the person you are rating.

SECTION B

	Not Applicable	Not Effective	Slightly Effective	Somewhat Effective	Effective	Very Effective	Extremely Effective
1. Inspires a shared vision and establishes standards that help the organization achieve its next stage of development. For example, creates a sense of purpose, defines reality in the larger context, instills shared values and beliefs.	0	1	2	3	4	5	6
2. Fosters unity, collaboration, and ownership, and recognizes individual and team contributions. For example, creates a climate of community, builds morale, sets a positive tone, resolves disagreements.	0	1	2	3	4	5	6
3. Exercises power effectively and empowers others to act. For example, facilitates change, shares authority, nurtures the skills of group members.	0	1	2	3	4	5	6
4. Exerts influence outside of the organization in order to set the right context for the organization. For example, serves as a symbol for the group, secures resources, builds coalitions, acts as an advocate.	0	1	2	3	4	5	6
5. Establishes an environment conducive to learning. For example, provides intellectual stimulation, creates a supportive climate for learners, facilitates the professional development of staff.	0	1	2	3	4	5	6
6. Satisfies the job-related needs of members of the organization as individuals. For example, respects, trusts, and has confidence in members; adapts leadership style to the situation; creates a satisfying work environment.	0	1	2	3	4	5	6
7. Overall, how effective is the leadership performance of the person you are rating?	0	1	2	3	4	5	6

Thank you for completing this survey!

Please return the completed survey directly to

National Center for Research in Vocational Education
460 VoTech Building, 1954 Buford Avenue
University of Minnesota
St. Paul, MN 55108

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Appendix B

Sample Individualized Feedback Report

LEI INDIVIDUALIZED FEEDBACK REPORT

Introduction

You recently requested five of your subordinates (or peers) who know you well at work to rate your leadership performance on the *Leader Effectiveness Index* (*LEI*). The purpose of this report is to provide you (the ratee) with feedback based upon the completed instruments.

Two types of individualized feedback are contained in this report. Chart 1 shows the average of the ratings assigned to your performance by your observer raters. Chart 2 compares the average rating assigned to you with a norm (comparison) group consisting of 551 vocational administrators and vocational teacher leaders.

Average *LEI* Observer-Rating

Chart 1 contains the average of your observer ratings. The average is in raw score form as contained in the *LEI*: 1 means "Not Effective"; 2 is "Slightly Effective"; 3 is "Somewhat Effective"; 4 is "Effective"; 5 is "Very Effective"; and 6 is "Extremely Effective." The rating shown on Chart 1 is the mean score of items 1-6 on the *LEI* averaged over the three to five observer-raters who completed and returned the instrument. (A minimum of three observer-raters was required to report average ratings.)

The standard error of the mean of the three to five individual observer-ratings is shown as a line through the average observer-rating. The standard error is a measure of the uncertainty of the precision of the mean rating of the three to five individual observers actually used. More precisely, if a large number of sets of three to five observers were used, in 68% of the cases their average rating would fall between plus and minus one standard error. Consequently, instead of thinking about *an* average observer-rating, it is more accurate to think of a *range* of average observer-ratings—the range shown by the line representing the standard error.

Comparing Observer-Ratings with a Norm Group

Chart 2 compares your average observer-rating with a norm group consisting of 551 vocational administrators and vocational teacher leaders. The persons in the norm groups were drawn purposively from the following states: Arkansas, Colorado, Florida, Georgia, Illinois, Iowa, Maryland, Ohio, Oklahoma, Oregon, Tennessee, and Wisconsin. (A complete description of the group and the norming process is contained in Moss, Lambrecht, Finch, & Jensrud [in press].)

On Chart 2, the raw scores of the average observer-ratings of norm group members were converted to normalized T-scores. This makes the distribution of the T-scores bell-shaped with a mean of 50 and a standard deviation (average deviation around the mean) of 10. Approximately 68% of the average observer scores fall between 40 and 60 on the T scale. About 98% of the scores fall between 30 and 70 on the T scale.

The line through your average observer-rating shows its standard error. The standard error is a measure of uncertainty of the precision of the mean rating of the set of three to five observers actually used. More precisely, if a large number of sets of three to five observers were used, in 68% of the cases their average ratings would fall between plus and minus one standard error. Consequently, instead of thinking about *an* average observer-rating, it is more accurate to think of a *range* of average observer-ratings—the range shown by the line representing the standard error. One use of the standard error is to see whether the line representing plus or minus one standard error crosses the T-score of 50 (the mean) of the norm group ratings. If it does, the observer T-score rating may be considered average in the norm group; if not, the observer-rating is either above or below the mean of the norm group.

Below the T-score there is a percentile scale. Each T-score (and each range of T-scores) has an equivalent percentile value. The percentile value of a T-score indicates the proportion of individuals in the norm group who scored at or below that T-score. For example, if you have a T-score equivalent to the 90 percentile, then 90% of the individuals in the norm group have scores equal to or lower than yours. More appropriately, if the standard error of your T-score represents a range equivalent to the 85 to the 93 percentiles, then it might be assumed that between 85% and 93% of the individuals in the norm group have scores equal to or less than yours.

Using Feedback Results

Given the results shown on your individualized feedback report, the next steps are to utilize that information to plan how you might improve your performance. The following steps may be helpful:

A. Establish developmental goals

1. Meet with your observer-raters. Explore their ideas for areas of performance that might be improved and how it might be accomplished.
2. Meet with your mentor(s) and have the same discussion.
3. Use the *Leader Attributes Inventory* (*LAI*) (Moss, Lambrecht, Finch, & Jensrud [in press]). This multirater instrument will provide a diagnostic assessment of 37 leader attributes that predispose desirable leader behavior. It will help pinpoint the attributes that should comprise your developmental goals.
4. Select the three to five attributes or areas of performance with greatest need for improvement in the immediate future.

B. Formulate a leadership development plan

1. Using the attributes or the areas of performance to be improved as goals, create tentative "action plans" that stipulate the activities, resources needs, completion date, and method(s) of measuring progress for each goal.
2. Review the action plans with your mentor(s).
3. Revise the action plan(s).

C. Initiate the planned activities

Chart 1
Average *LEI* Observer-Rating
(Raw Scores)

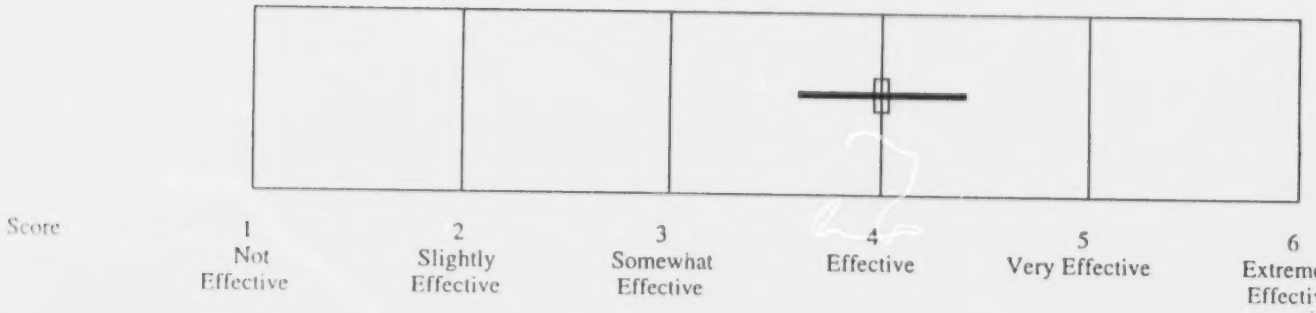

Chart 1

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Chart 2
Comparing Average Observer-Rating with the Vocational Administrator and Vocational Teacher Leader Norm Group

(Normalized T-Scores)

Normalized T-Scores	10	20	30	40	50	60	70	80	90	100
Percentile Scores	1	2	7	16	31	50	70	84	93	98	99

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Chart 2

Appendix C

Table Converting *LEI* Raw Scores to Normalized T-Scores (with Standard Error of Measurement)

Table C-1

***LEI* Raw Scores to Normalized T-Score Equivalents**

(n=551)

Standard Error is ±.4 points (raw score)

Raw Score:	T-Score	Raw Score:	T-Score
6.0	-	4.3	42
5.9	81	4.2	41
5.8	76	4.1	39
5.7	72	4.0	38
5.6	68	3.9	36
5.5	66	3.8	35
5.4	64	3.7	34
5.3	61	3.6	32
5.2	58	3.5	30
5.1	56	3.4	30
5.0	54	3.3	30
4.9	52	3.2	28
4.8	51	3.1	28
4.7	49	3.0	27
4.6	47	2.9	-
4.5	46	2.8	26
4.4	44	2.7	22